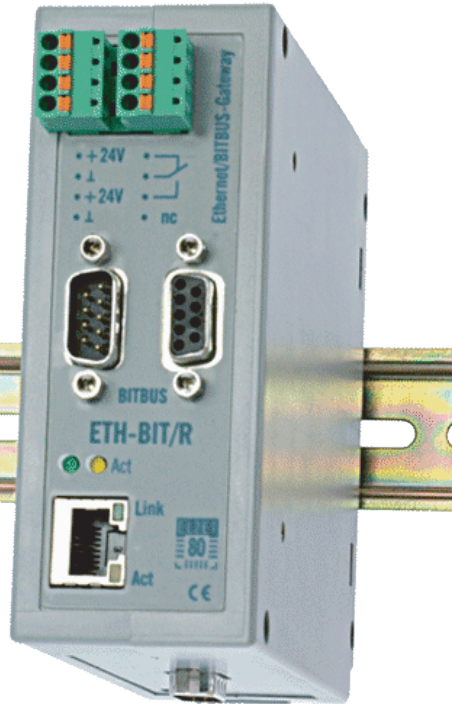




# ETH-BIT/R

## Ethernet/BITBUS-Gateway



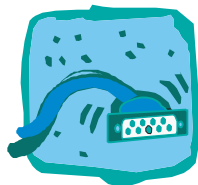
ETH-BIT/R is a rail-mount gateway between ETHERNET and BITBUS, working as master or as slave. It is based on the NET-A7S ARM processor board and comes with a firmware task that implements a BAPI-over-TCP-server (see [www.bitbus.org](http://www.bitbus.org)). The BAPI.dll software for Windows® emulates a local board for the PC and encapsulates BITBUS messages in TCP/IP messages to be sent to the BAPI/TCP server on ETH-BIT/R.

ETH-BIT/R needs 24V local power supply. BITBUS is isolated from this supply by a DC/DC converter with 500V test voltage.

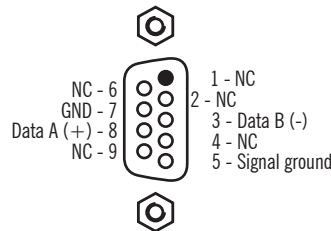
### Technical data:

Power requirements:  
24V local: 24V +/-15% @100mA, fused 10A max.

Ambient temperature 0..+50°C

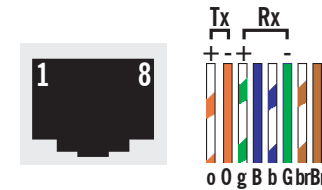


### BITBUS



The BITBUS port is a data only port, RTS lines as they would be needed in a repeater coupled subnet are not provided. The pins used are the Intel defined standard pins 3 and 8 for data and 5 for signal ground. ETH-BIT/R can be terminated using a pair of switches on the bottom side of the enclosure. Setting both switches to ON will terminate the bus. The BITBUS line is driven by a 75LBC176 RS485 line driver that allows up to 50 node loads.

### ETHERNET



The Ethernet connection is a standard Modular 8P8C (RJ45) connector with EIA/TIA-568B pin assignments as shown above. The PHY (physical layer driver) used in ETH-BIT/R accepts normal and uplink (reversed) cables. In the PoE option, the 48V are usually transferred over the same lines as the data. Our design allows the unused wire pairs as alternative supply possibility. The green LED within the ETH connector signals "Link established" while the yellow LED lights during Ethernet activity.

### 24V

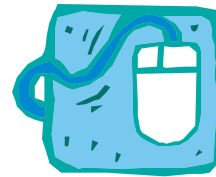
The left four terminal connector takes the 24V supply voltage and allows cascading to the next ETH-BIT/R.

### Relay

The top three pins of the right four terminal connector are changeover relay contacts operated by Express-I/O Dout 0. See the picture for pin assignments. The both topmost contacts are normally closed. Contact load is 8A at 30VDC.

### RS232

On the bottom of the box there's a 9 pin Sub-D-connector with access to the system monitor of the board. You may use this connection with a normal PC crossover (nullmodem) cable and a terminal program to set the IP address etc. (see below). RxD (pin 2), TxD (3) and ground (5) only, no handshake pins.



### Software Setup

To get connected to the gateway, it needs to get its IP address programmed. To do this, connect a terminal program (like Hyperterm) with 19200 bit/s, 8N1 ANSI to the SERO RS232 port available at the bottom of the box. On power up of ETH-BIT/R it will come up with mCAT's SYSMON start messages. At the prompt, enter IPSET IP "xxx.xxx.xxx.xxx" with xxx replaced by the decimal IP address representation. See "help ipset" will show how to set the network mask (255.255.255.0 for the normal small 255 node network), gateway or DNS if needed. See the mCAT SYSMON documentation for details. Reset! Now you can also use Telnet to access the SYSMON.

BITBUS is set to master (node 255 or FFh) and 375kBit/s by default. This corresponds to a code of 1ffh in the configuration eeprom's address 2. To set it to 62.5kBit and master, use the monitor command:  
`eewrite 2 0ff` Other settings are explained in the `readme-bapitcp-node-cfg.htm` file that comes with the BAPI/TCP software.

On the PC side, please download BAPI/TCP from [files.elzet80.de/bapitcp.zip](http://files.elzet80.de/bapitcp.zip) and follow the directions of the documentation that comes with this product. ETH-BIT/R simulates an add-on-board like the IPC-BIT900<PCI in the PC. Boards in the PC are enumerated BBUS0, BBUS1 etc. Likewise the ETH-BIT/Rs are assigned such a board number. The assignment between BBUSn and the IP address needs to be made with the tool `bapitcpcfg.exe`. If you like to run add-on-boards and BAPI/TCP concurrently within one PC, please consult `BAPITCP-concurrent-install.txt` on the CD.

If you want to program on ETH-BIT/R, for instance to scan BITBUS slaves automatically and present data in the web server, you should buy and install the mCAT developers CD. Information about memory usage on ETH-BIT can be found in chapter XIV-2.2.1 of the manual. To use the RS232 serial line for a local peripheral, please refer to chapter VIII-4.2 to negotiate this with SYSMON.